

Title 132 - NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

Chapter 4 - CRITERIA FOR FOSSIL FUEL COMBUSTION ASH DISPOSAL AREAS

001 Applicability. The requirements of this chapter apply to all fossil fuel combustion ash disposal areas required to obtain a permit pursuant to Chapter 2, 001.

002 Locational Criteria. New fossil fuel combustion ash disposal areas and lateral expansions of existing fossil fuel combustion ash disposal areas shall be located in accordance with the standards as described in this section. The application shall include documentation verifying that the fossil fuel combustion ash disposal area complies with the following.

002.01 A fossil fuel combustion ash disposal area shall not be located in an area where the Department finds that the solid waste activities will have a detrimental effect on the waters of the state based on the following criteria:

002.01A Current and projected use of water resources in the potential zone of influence of the site;

002.01B Ground water elevation and proposed separation between the lowest point of the lowest cell and the predicted maximum water table elevation; areas having high ground water tables may be restricted to landfill operations which will maintain a safe vertical distance between deposited refuse and the maximum water table elevation;

002.01C Potential interrelationship of the local aquifers, and surface waters based on historical records or other sources of information; and

002.01D Background and initial quality of water resources in the potential zone of influence of the site.

002.02 The application shall include, a description of the:

002.02A Soil and bedrock to a depth adequate to allow evaluation of the water quality protection provided by the soil and bedrock;

002.02B Potential for leachate generation, and of pollution of the waters of the state;

002.02C Ground water condition, including ground water flow below and adjacent to the proposed facility, with an appraisal of the effect of the facility on ground water and surface waters;

002.02D Name of and distance to nearby surface waters; and

002.02E Land use and population density of the proposed facility and of the area surrounding the facility within one mile of the facility boundaries.

002.03 No person shall locate a fossil fuel combustion ash disposal area within one thousand (1,000) feet from the nearest edge of an existing right-of-way of any state, interstate or federal highway unless the active area is screened by natural objects, plantings, fences, or other appropriate means so as to not be visible from such highway.

002.04 Floodplains. A new fossil fuel combustion ash disposal area, or a lateral or vertical expansion of these facilities, shall not be located in a 100-year flood plain, unless the owner or operator can demonstrate that the disposal area will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment.

002.05 Wetlands. A new fossil fuel combustion ash disposal area or lateral expansion

shall not be located in wetlands.

002.06 Unstable areas. An owner or operator of a new fossil fuel combustion ash disposal area, existing fossil fuel combustion ash disposal area, or lateral expansion located in an unstable area shall demonstrate in the operating record and notify the Department of the demonstration in the operating record that engineering measures have been incorporated into the facility's design to ensure that the integrity of the containment systems of a fossil fuel combustion ash disposal area will not be disrupted.

002.06A An owner or operator shall consider the following factors, at a minimum, when determining whether an area is unstable:

002.06A1 On-site or local soil conditions that may result in significant differential settling;

002.06A2 On-site or local geologic or geomorphologic features; and

002.06A3 On-site or local human-made features or events, both surface and subsurface.

002.06A4 For purposes of this section,

002.06A4(a) "Unstable area" shall mean a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the facility structural components responsible for preventing releases from the facility. This term may include poor foundations conditions, areas susceptible to mass movements, and Karst terranes.

002.06A4(b) "Poor foundation conditions" shall mean those areas where features exist which indicate that a natural or human-induced event may result in inadequate foundation support for the structural components of a solid waste management facility.

002.06A4(c) "Areas susceptible to mass movements" shall mean those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the solid waste management facility, because of natural or human-induced events, results in the down slope transport of soil and rock material by means of gravitational influence.

002.06A4(c)(1) Areas

of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluction, block sliding, and rock fall.

002.06A4(d) "Karst terranes" shall mean areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

003 Design Criteria. The construction and design of all fossil fuel combustion ash disposal areas shall:

003.01 Be protective of human health and the environment;

003.02 Not result in pollution of the waters of the state; and

003.03 In the case of a new fossil fuel combustion ash disposal area or a lateral expansion of an existing fossil fuel combustion ash disposal area, that has not received waste prior to October 1, 1993, the construction and design plans shall include the following:

003.03A A description of the sequence of earth materials at the proposed facility to a depth sufficient to assure the reliability of the facility design;

003.03B A schedule of construction and a construction quality assurance plan as described in 003.04C;

003.03C Data obtained from soil samples taken from the proposed facility site which describe the soil classification, grain size distribution, permeability, compatibility, and ion-exchange properties of the subsurface materials for those strata which are essential to the design of the facility; and

003.03D If exploration holes are drilled to obtain data, information showing the manner of plugging and sealing such holes.

003.04 The construction and design plans for all new or lateral expansions of an existing fossil fuel combustion ash disposal area shall also include the following documentation.

003.04A A liner designed and constructed according to one of the following designs:

003.04A1 With a composite liner consisting of two components: the upper component must consist of a minimum 30-mil flexible membrane liner (FML); and the lower component must consist of at least a two (2) foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. FML

components consisting of high density polyethylene (HDPE) shall be at least 60-mil. thick. The FML must be installed in direct and uniform contact with the compacted soil component; or

003.04A2 In accordance with a design approved by the Department, alternate designs shall ensure that the concentration values listed in Appendix III will not be exceeded in the uppermost aquifer at the relevant point of compliance, as specified by the Department under 003.04D of this chapter. The Department shall consider the following factors when approving the design of liner systems:

003.04A2(a) The hydrogeologic characteristics of the facility and the surrounding land;

003.04A2(b) The climatic characteristics of the area;

003.04A2(c) The volume and type of fossil fuel combustion ash to be deposited; and

003.04A2(d) The volume and physical and chemical characteristics of the leachate.

003.04A3 All required compacted soil components shall be constructed in lifts which do not exceed six (6) inches in thickness.

003.04A3(a) Uniform compaction of the lifts shall be assured through the use of appropriate equipment. Liners shall be supported by material of sufficient bearing strength to prevent subsidence and failure of any component. The bearing strength shall be documented through materials testing.

003.04B A leachate collection and treatment system shall be constructed where necessary to protect the waters of the state. Any required discharge permit shall be obtained from the Department. The leachate collection system shall be maintained as required by section 006.

003.04B1 Leachate collection systems shall be designed and constructed to maintain less than a 30-cm. depth of leachate over the liner.

003.04C A construction quality assurance plan for engineered containment systems and leachate collection systems shall be submitted with the application. The plan shall assure adequate construction and testing of the containment system components as called for in design specifications in the facility plan. The construction quality assurance plan shall be prepared and signed by a professional engineer registered in the State of Nebraska.

003.04D The relevant point of compliance noted in 003.04A2 of this

chapter shall be located at the waste management unit boundary. The applicant may request the establishment of an alternate relevant point of compliance. The alternate relevant point of compliance shall be no more than 150 meters from the waste management unit boundary and shall be located on land owned by the owner of the fossil fuel combustion ash disposal area. The Department will base the decision to approve or deny the applicant's request upon consideration of the following factors:

003.04D1 The hydrogeologic characteristics of the facility and the surrounding land;

003.04D2 The volume and physical and chemical characteristics of the leachate;

003.04D3 The quantity, quality and direction of flow of ground water;

003.04D4 The proximity and withdrawal rate of the ground water users;

003.04D5 The availability of alternative drinking supplies;

003.04D6 Method of operation as outlined in the operational plan;

003.04D7 The existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water, and whether the ground water is currently used or reasonably expected to be used for drinking water;

003.04D8 Public health, safety, and welfare effects; and

003.04D9 Practicable capability of the owner or operator.

003.04E Fossil fuel combustion ash disposal area run-on/run-off control systems shall be designed, constructed and maintained to meet the following criteria:

003.04E1 A run-on control system to prevent flow onto the active portion of the fossil fuel combustion ash disposal area during the peak discharge from a twenty-five (25) year storm; and

003.04E2 A run-off control system from the active portion of the fossil fuel combustion ash disposal area to collect and control, at least, the water volume resulting from a twenty-four (24) hour, twenty-five (25) year storm.

003.04E3 Surface water courses and run-off shall be diverted from the fossil fuel combustion ash disposal area by devices such as trenches, conduits and proper grading to minimize infiltration and erosion of cover material. The fossil fuel combustion ash disposal area shall be constructed and graded so as to promote rapid surface water run-off without excessive erosion.

003.04E4 Run-off from the active portion of the fossil fuel combustion ash disposal area shall be handled in accordance with 004.05.

003.04E5 Regrading shall be done as required during

construction, after completion, and during the placement of fossil fuel combustion ash to avoid ponding of precipitation and to maintain cover material integrity. On-site drainage structures and channels shall be designed for at least a twenty-four (24) hour, twenty-five (25) year storm.

004 Operational Criteria. Operations of all fossil fuel combustion ash disposal areas shall be in accordance with the approved operational plan and Chapter 2 requirements.

004.01 A fossil fuel combustion ash disposal area shall be designed and operated at all times so as to not constitute a hazard, or a threat to human health or the environment.

004.02 A fossil fuel combustion ash disposal area shall only accept nonhazardous waste defined as fossil fuel combustion ash. All unacceptable waste shall be removed from the site daily.

004.03 An owner or operator of a fossil fuel combustion ash disposal area shall control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, supervision, or any other measures, as appropriate, to protect human health and the environment.

004.04 Access roads to the site shall be maintained so as to be negotiable by vehicles.

004.05 Surface Water Requirements. A fossil fuel combustion ash disposal area shall not:

004.05A Cause a discharge of pollutants into waters of the state, including wetlands, that violate any requirements of Title 119 - Rules and Regulations Pertaining to the Issuance of Permits Under the National Pollutant Discharge Elimination System.

004.05B Cause the discharge of a non-point source of pollution to waters of the State that violate any requirement of an area-wide or state-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, as amended (33 U.S.C. 1251 et seq).

004.06 An owner or operator shall not accept solid waste at the facility if the storage capacity has been reached. Solid waste shall only be stored in areas designated for storage.

004.07 Liquids Restrictions. Bulk or non-containerized liquid shall not be placed in a fossil fuel combustion ash disposal area unless:

004.07A The liquid is leachate derived from the fossil fuel combustion ash disposal area and the disposal area is designed with a composite liner and leachate collection system described in section 003.04;

004.07B The liquid is water used for dust control; or

004.07C The liquid is water used to facilitate the placement of the fossil fuel combustion ash in the disposal area.

004.08 Any materials salvaged from the fossil fuel combustion ash disposal area shall be removed daily or stored in a manner protective of the public health and environment.

004.09 All completed areas of a fossil fuel combustion ash disposal area shall be properly reclaimed with final cover pursuant to the requirements of section 005 of these regulations.

004.10 Measures shall be taken to control fugitive dust in accordance with Title 129 - Nebraska Air Quality Regulations during excavation, vehicle movement, placement of ash or covering deposits.

004.11 The operational plan for a fossil fuel combustion ash disposal area shall include a description of the methods of operations which comply with the requirements of 004.01 to 004.10. The operational plan shall also include:

004.11A A description of the days and hours of operations;

004.11B A listing of sources and types of fossil fuel combustion ash to be received; and an estimate of daily quantity to be received;

004.11C A contingency plan for addressing reasonably foreseeable events including, but not limited to, wet weather, high winds, or natural disaster; and

004.11D A schedule of filling; fossil fuel combustion ash placement methods; and a phased site development plan.

005 Closure criteria. Owners or operators of fossil fuel combustion ash disposal areas shall close according to the approved closure plan, and shall install the final cover within six (6) months of the last receipt of waste.

005.01 Owners or operators of fossil fuel combustion ash disposal areas shall close in the following manner:

005.01A The final cover shall consist of at least two (2) feet of earthen material capable of sustaining adequate vegetative cover.

005.01B Final grades and side slopes of the closed area shall prevent run-on and runoff from eroding or otherwise damaging the final cover.

005.01C Appropriate vegetative cover shall be established and maintained as soon as practical after final grading.

005.01D Unauthorized public access, vehicular traffic, and illegal dumping shall be prevented by the use of artificial barriers, natural barriers, or both, along with signs prohibiting such access.

005.02 The requirements of this section apply to all fossil fuel combustion ash disposal areas, accepting waste after October 1, 1993. Within 90 days following the installation of the final cover system, the owner or operator shall record a permanent notation on the deed to the disposal area property, or some other permanent property record or instrument that is normally examined during the title search and shall notify the Department that such notation or instrument has been recorded in the permanent records of the county Register of Deeds. A copy of this record and notification shall be placed in the operating record. This notation or instrument must, in perpetuity, notify any potential purchaser of the following information:

005.02A The existence of a closed fossil fuel combustion ash disposal area on the property;

005.02B The type, depth and location of the fossil fuel combustion ash on the property, as well as the existence of any monitoring systems; and

005.02C Any restrictions on the use of the property which may be provided to protect the integrity of the final cover, liner, monitoring systems or any other components of the containment system.

005.03 The owner or operator of a fossil fuel combustion ash disposal area shall notify the Department, in writing, at least 180 days prior to the date the owner or operator expects to begin closure. Such notice shall also be placed in the operating

record.

005.04 The owner or operator of a fossil fuel combustion ash disposal area shall begin implementation of the closure plan required in 005.09 of this rule within thirty (30) days after the date on which the permitted facility receives the final volume of waste. The owner or operator shall notify the Department, in writing, of the date of the receipt of the final volume of waste, the date of the initiation of closure, and the date of the installation of the final cover system, as applicable. Copies of these notices shall also be placed in the operating record.

005.05 The owner or operator of a fossil fuel combustion ash disposal area shall complete closure activities in accordance with the closure plan within 180 days after the last receipt of waste. Extensions of the closure period may be granted by the Department if the owner or operator demonstrates that closure will, due to circumstances beyond the operator's control, take longer than 180 days and the owner or operator has taken, and will continue to take, all steps to prevent threats to human health and the environment from the unclosed fossil fuel combustion ash disposal area.

005.06 Following the closure of a fossil fuel combustion ash disposal area or any part of the area, the owner or operator shall submit a certification to the Department signed by a professional engineer registered in the State of Nebraska verifying that closure has been completed in accordance with the approved closure plan. This certification shall also be placed in the operating record.

005.07 Owners or operators shall not implement modifications to the design or operation of a fossil fuel combustion ash disposal area which results in modifications to the closure plan without prior approval of the Department.

005.08 No person shall excavate, disturb the final cover, or remove any deposited materials from any closed fossil fuel combustion ash disposal area without having received prior approval from the Department. Requests for approval shall demonstrate that disturbance of the final cover, liner, or other component of the containment system, including any removal of waste, will not increase the potential threat to human health and the environment and shall include:

005.08A An operational plan identifying the planned activities and the area involved;

005.08B A survey identifying the lines and grades defining the limits of the proposed excavation both vertically and horizontally;

005.08C Estimated number of cubic yards and type of material to be excavated;

005.08D Location where excavated material is to be deposited;

005.08E Type of equipment to be used to transport material;

005.08F Estimated time required for excavation and disposal procedure; and

005.08G Provisions for closing the excavated or disturbed area.

005.09 Closure Plan. Owners or operators of fossil fuel combustion ash disposal areas accepting waste after October 1, 1993 shall prepare and submit a written closure plan that describes the steps necessary to close the fossil fuel combustion ash disposal area at any point during the active life of the area. This closure plan and any revisions shall be placed in the operating record, with copies of any such revisions forwarded to the Department. The closure plans shall include, but not be limited to, the following:

005.09A A description of the final cover designed in accordance with the methods and procedures to be used to install the cover;

005.09B A description of the types and sources of final cover material to

be used;

005.09C An estimate of the largest area of the solid waste disposal area ever requiring a final cover at any time during the active life of the solid waste disposal area;

005.09D An estimate of the maximum inventory of wastes ever on-site over the active life of the solid waste disposal area;

005.09E A schedule for the completion of all activities necessary to satisfy the closure criteria; and

005.09F Installation of any or all of the following, as required by the Department and not already present at the site: leachate collection systems and/or groundwater monitoring wells.

006 Post-closure criteria. The owners or operators of all fossil fuel combustion ash disposal areas accepting waste after October 1, 1993 shall provide for post-closure care for a period of five (5) years.

006.01 Post-closure care shall include, at a minimum, the performance and recording of each of the following activities in the operating record:

006.01A Annual inspection and maintenance of the cover to ensure integrity and effectiveness, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and runoff from eroding or otherwise damaging the final cover;

006.01B Annual inspection and maintenance of access control structures and posted signs;

006.01C Maintenance and operation of any existing leachate collection system;

006.01D Maintenance and semiannual sampling and testing of any existing groundwater monitoring well systems. Results of testing shall be reported to the Department, and placed in the operating record; and

006.01E Maintenance and operation of any other environmental control features which are included in the design and operation of the fossil fuel combustion ash disposal area or required by the Department to protect human health and the environment.

006.02 Owners or operators of fossil fuel combustion ash disposal areas accepting waste after October 1, 1993, shall submit a post-closure plan to the Department for approval. This post-closure plan and any revisions shall be placed in the operating record, with copies of any such revisions forwarded to the Department.

006.03 Post-closure plans required pursuant to 006.02 shall include annual maintenance and monitoring activities to be performed at a fossil fuel combustion ash disposal area for the specified post-closure period after the approved completion of closure. The length of the post-closure period may be increased, if the Department determines that the lengthened period is necessary to protect human health and the environment. The length of the post-closure period may be reduced, if the Department determines that the reduced period is sufficient to protect human health and the environment.

006.04 A detailed written post-closure plan shall include, at a minimum, the following information:

006.04A A description of the monitoring and maintenance activities required in 006.01 for each fossil fuel combustion ash disposal area and the frequency at which these activities will be performed;

006.04B Name, address, and telephone number of the person or office to contact about the closed fossil fuel combustion ash disposal area during the post-closure period;

006.04C A description of the planned uses of the property during the post-closure period and a description of the period of time during which access to the facility will be controlled. Post-closure use of the property shall not disturb the integrity of the final cover, liner, or any other components of the containment system, or the function of the monitoring systems.

006.05 The owner or operator shall begin implementing the post-closure plan required in Section 006.02 immediately after closure is completed and continue implementing the plan over the entire post-closure period.

006.06 Following the post-closure period of each fossil fuel combustion ash disposal area, the owner or operator shall submit a certification to the Department signed by a professional engineer registered in the State of Nebraska verifying that post-closure care has been completed in accordance with the approved post-closure plan.

007 Required Maps and Drawings. The permit application for a fossil fuel combustion ash disposal area shall include the following maps and drawings. When a structure described in 007.03 and 007.04 is not present at the site, a notation shall be made on the required map or drawing.

007.01 A topographic map or maps of the fossil fuel combustion ash disposal area drawn to the scale of 200 feet to the inch or larger, containing 5-foot contour intervals where the relief exceeds 20 feet, and 2-foot contour intervals where the relief is 20 feet or less, and referred to a United States Geological Survey datum.

007.02 A topographic map indicating the proposed final contours and landscaping of completed fossil fuel combustion ash disposal areas with a statement of the proposed final use of the site, if known.

007.03 Maps of the site, drawn to scale, indicating the location of:

007.03A Ground water monitoring well locations;

007.03B Points of entrance to and exit from the facility and to and from the operating area of the facility;

007.03C Loading, dumping and any temporary storage areas;

007.03D Interior roads and ramps;

007.03E Devices for controlling unauthorized access to the facility site;

007.03F Drainage facilities, structures, walls, cribbing, surface protection devices, and any other devices as are necessary to comply with applicable water quality standards;

007.03G Utilities to service the site;

007.03H Gas and oil wells;

007.03I High tension power lines;

007.03J Fuel transmission pipelines;

007.03K Salvage operations;

007.03L Fill area;

007.03M Borrow areas; and

007.03N Provisions for concealing a fossil fuel combustion ash disposal area from public view.

007.04 Maps of the area within one-quarter mile of the boundaries of the site, drawn to scale, showing the location of:

007.04A Waterways and surface drains;

007.04B Borings, wells, springs, and their surface elevations, and depths and elevations of water levels;
007.04C Field tile drains; and
007.04D Underground and surface mines, elevations of mine pools, and mine pool discharges.

Enabling Legislation: Neb. Rev. Stat. §§13-2034; 13-2036; 81-1504 (1), (2), (7), (11)-(13), (20); 81-1505; 81-1528 (7)

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